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A Centralized Processing System for School Libraries in New York State. Report to Bureau of School Libraries, New York State Education Department.

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The conclusions of this report are (1) that elementary and secondary public and private school libraries in New York would benefit greatly from a centralized book processing and cataloging center and (2) that school library centralized processing should be coordinated with either the public libraries or the university libraries in the state. The processing system would consist of one main computer and cataloging center and six regional processing centers. It is recommended that school libraries coordinate with one of two centralized processing systems currently in advanced stages of design--the State University of New York (SUNY) system for university libraries and the Association of New York Libraries for Technical Services (ANYLTS) system for public libraries instead of establishing a third computer facility. Two plans, one involving each system, are described in detail with information on costs and implementation schedules included. The plan to coordinate with the SUNY system is favored, although it is suggested that the ANYLTS system could be expanded to adequately meet the school libraries' processing needs. (CC)

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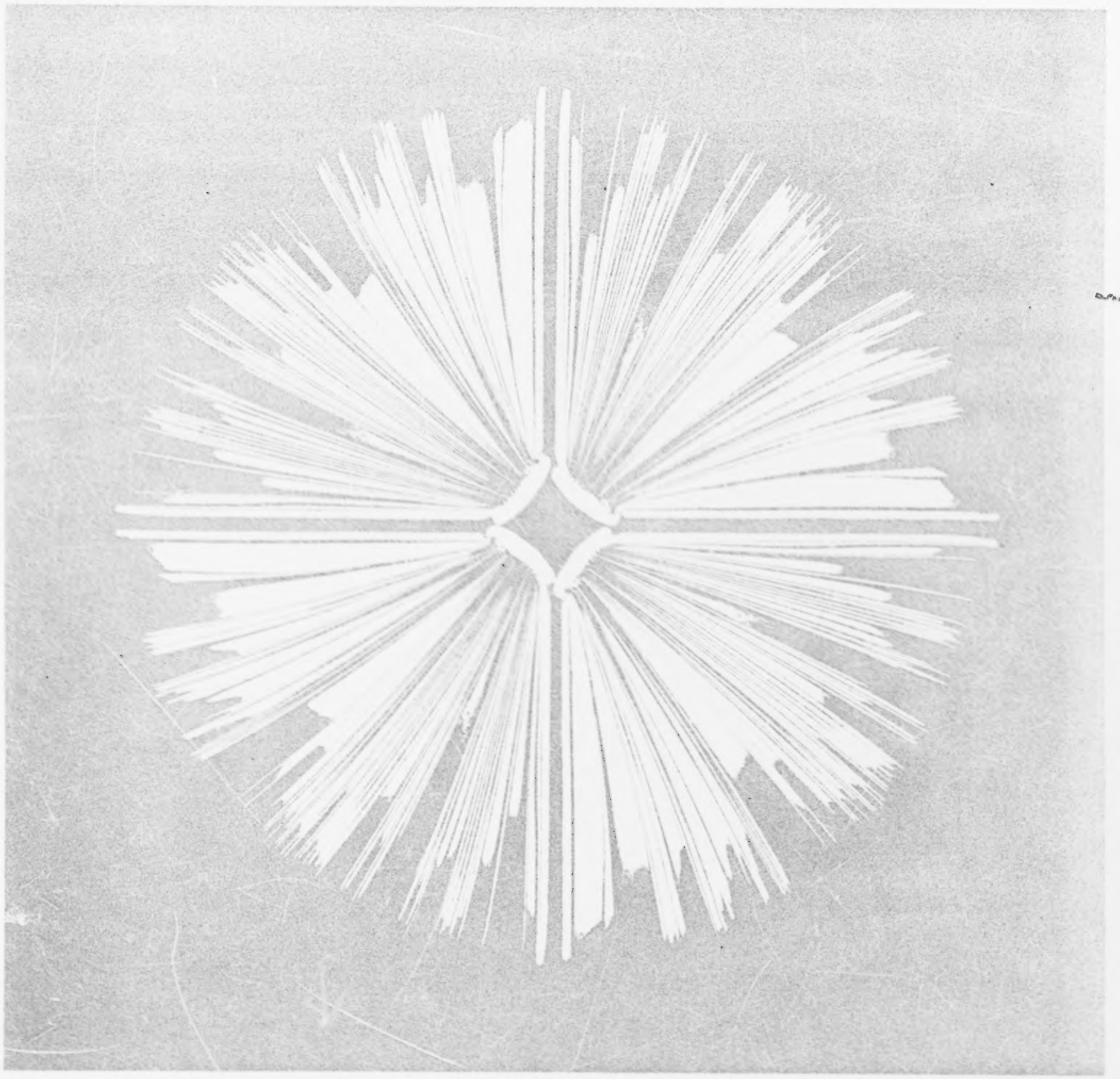
A Centralized Processing System for School Libraries in New York State



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A CENTRALIZED PROCESSING SYSTEM FOR SCHOOL LIBRARIES IN NEW YORK STATE

Report to

BUREAU OF SCHOOL LIBRARIES, NEW YORK STATE EDUCATION DEPARTMENT

ED023428

C-69649

October 1967

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TABLE OF CONTENTS

	Page
List of Figures and Tables	v
SUMMARY	1
A. PURPOSE AND APPROACH	1
B. CONCLUSIONS	2
C. RECOMMENDATIONS	2
I. ADMINISTRATIVE RESPONSIBILITY FOR SLOCAP SYSTEM	4
II. CENTRALIZED PROCESSING CENTER	5
A. FUNCTIONS OF MAIN CENTER	5
B. ESTABLISHMENT OF A SEPARATE COMPUTER SYSTEM	5
C. ALTERNATIVE METHODS OF IMPLEMENTATION	6
D. CATALOGING	9
III. REGIONAL CENTERS	10
A. PLAN 1	10
B. PLAN 2	12
IV. PLAN 1: COORDINATION WITH THE SUNY SYSTEM	14
A. OUTLINE OF THE PROPOSED SYSTEM	14
B. BOOK-ORDERING STATISTICS ASSUMED	15
C. AUTHORITY FILE	15
D. BOOK ORDERING	16
E. REGIONAL PROCESSING	18
F. DATA TRANSMISSION	19
G. INVOICING: THE ON-ORDER FILE	19

TABLE OF CONTENTS (Continued)

		Page
V.	PLAN 2: SLOCAP/ANYLTS	21
VI.	COSTS	23
VII.	IMPLEMENTATION SCHEDULE	27
	A. SCHEDULES UNDER PLAN 1 AND PLAN 2	27
	B. CONCLUSION	28

LIST OF FIGURES AND TABLES

Figure No.		Page
1	Central Processing System: Plan 1	7
2	Central Processing System: Plan 2	8
3	Areas Serviced by Regional Centers	11

Table No.		
1	Costs of Salaries Per Regional Center	23
2	Budget Per Regional Center	24
3	Budget for SLOCAP Headquarters	25
4	Total Annual Costs of the Project: 5 Million Volumes	26

SUMMARY

A. PURPOSE AND APPROACH

The Bureau of School Libraries of the New York State Department of Education requested Arthur D. Little, Inc., to carry out an implementation study for a centralized processing system for public and private elementary and secondary school libraries in the State of New York. This follows an earlier study by Nelson Associates, Inc., entitled "Centralized Technical Processing for the Public and Private Elementary and Secondary School Libraries of New York State," which established both the feasibility and desirability of such a system.

During this study we have examined carefully the requirements of school libraries and the ways in which these needs are being met through the establishment both of regional school processing centers, and of centers which process for both schools and public libraries. We have also examined proposals for centralized book processing and cataloging systems which are currently under consideration by ANYLTS (Association of New York Libraries for Technical Services) and SUNY (State University of New York).

The case team is grateful for the assistance of the Advisory Committee appointed for this study. Its members are:

Miss Helen M. Cashman,	Director of Library Services for the Genesee Valley School Development Association
Miss Mary Ann Connor,	Librarian, Monroe County BOCES
Miss Dorothy Currie,	Superintendent of Libraries and Instructional Materials, Yonkers Board of Education
Mrs. Shirley Ebetino,	Superintendent of Elementary School Libraries, Schenectady Public Schools
Miss Roberta Everitt,	Library Coordinator, Farmingdale Public Schools
Mrs. Kathleen Hollister,	Director of Library Services, Central Processing Center, East Greenbush Central Schools
Mrs. Dorothy Lilley,	Library Coordinator, Patchogue-Medford Public Schools
Mrs. Elsie McNulty,	Curriculum Enrichment Center, Chenango County BOCES
Mr. Richard Pfefferle,	Chief, Technical Services, Nassau Library System
Mrs. Jean H. Porter,	Director, Western New York Library and Instructional Resources and Technical Services Center, Medina
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Mr. Walter W. Curley, Case Leader
Mr. Dennis N. Beaumont, Day-to-Day Charge
Mr. John W. Frank
Mr. Talbot D. Bulkley
Miss Mary A. Heneghan

B. CONCLUSIONS

We thoroughly endorse the findings of the Nelson study that the elementary and secondary school libraries in New York State would benefit greatly from a centralized book processing and cataloging center. The growth of school libraries and the increased emphasis on library materials dictate a definite need for such services at this time.

We also conclude that the requirements of the school libraries do not differ sufficiently from the specifications of the two distinct computer programs which are already in advanced design stages within New York State to justify the development of a third distinct computer system. Rather, the school libraries should concentrate their efforts on the establishment of a joint processing center coordinated with either the public libraries or the university libraries, with a view to establishing facilities which will best serve the needs of both user groups.

C. RECOMMENDATIONS

We therefore recommend that the Bureau of School Libraries take the following steps to meet the needs of school libraries in New York State:

- Assign administrative responsibility for a School Library Ordering, Cataloging, and Processing (SLOCAP) System to the Bureau of School Libraries, New York State Department of Education.

- Create a Board of Trustees to serve as a liaison between SLOCAP and the Bureau of School Libraries.

- Establish a central SLOCAP office to control the entire program, the office to be located at the site of the central computer and cataloging facility.

- Establish as soon as possible a full complement of regional processing centers which will use the facilities of the main center when it becomes operational.

- Establish as soon as possible a cataloging staff in order to build a basic file of catalog information for use in the central system.

- Adjust present purchasing procedures to permit the acquisition of books and materials without submitting them to bid or state contract.

- Allocate SLOCAP's cost of establishing and maintaining the central office, including any central computer facilities, to the Bureau of School Libraries. The regional centers should be supported by charges to the participating libraries.

We further recommend that one of the two following plans be implemented:

- PLAN 1: Coordination with SUNY

  –Coordinate the SLOCAP system with the proposed center for the libraries of the State University of New York (SUNY).

  –Cooperate with the public library system in the exchange of catalog information.

- PLAN 2: Coordination with ANYLTS

  –Coordinate the organization of SLOCAP and ANYLTS to provide a unified processing system.

  –Establish an Executive Board, composed of two representatives each from SLOCAP and ANYLTS, to supervise the operation.

  –Establish regional offices to perform the physical processing for both school and public libraries.

We feel strongly that a computer processing system similar in type to the one being developed for SUNY will better meet the needs of school libraries than will the system currently being designed for public libraries. Whichever of the two plans is adopted, we feel that either a SUNY-type system design should be installed or that the system now being designed for public libraries should be expanded.

1. ADMINISTRATIVE RESPONSIBILITY FOR SLOCAP SYSTEM

We recommend assignment of administrative responsibility for a School Library Ordering, Cataloging, and Processing (SLOCAP) System to the Bureau of School Libraries, New York State Department of Education. The Bureau is already in existence, with a staff which is aware of the problems and recognizes the need for centralized book processing services for school libraries. The Bureau has been involved in the activities with BOCES (Board of Cooperative Educational Services) units and in the management of federal funds for school library programs. We cannot justify the creation of another agency to administer the SLOCAP system.

In order to provide the Bureau of School Libraries with the necessary support, we recommend the creation of a Board of Trustees. This Board should be composed of nine members: three from regional centers, three school librarians, and three school administrators. There should also be ex-officio members representing the Bureau of School Libraries and ANYLTS. The Trustees would discuss policy decisions and other problems at the request of the Bureau of School Libraries, but in addition to their advisory role, they should participate in the creation and organization of regional centers.

We would also recommend the appointment of an ex-officio member to represent school libraries on the ANYLTS Board.

II. CENTRALIZED PROCESSING CENTER

As a result of a careful examination of the existing processing centers in New York State, we recommend that a single organization consisting of one main computer and cataloging center and six regional processing centers be established for the elementary and secondary public and private school libraries of the state. Potential duplication of effort, particularly in book cataloging, and the inability of discrete regional centers to obtain significant economies of scale, combine to make a unified system a practical necessity.

We have visited and studied processing centers operating under the Board of Cooperative Educational Services (BOCES) and Title III[1] funds, as well as two centers which are operated by regional public library systems in New York State and which also process books for school libraries. School libraries present some unique problems in material acquisition and processing. With the advent of federal funds and an increased emphasis on the development of centralized libraries in all schools, the demand for books has risen sharply. Furthermore, it appears that the demand will grow rather than diminish in the immediate future.

A. FUNCTIONS OF MAIN CENTER

These may be outlined as follows:

- Placing orders with vendors for delivery to the appropriate regional center.
- Cataloging all titles ordered through the center.
- Distributing catalog cards and labels to regional centers as required.
- Proving vendor invoices and paying vendors.
- Billing participating school libraries.
- Maintaining a union catalog.

The centralization of these tasks allows significant economies of scale to be obtained, both through a reduction in the number of total staff and through the use of modern data processing equipment.

B. ESTABLISHMENT OF A SEPARATE COMPUTER SYSTEM

The feasibility of establishing a separate computer facility for the school library system was examined, but after careful consideration this alternative was rejected. This rejection was based largely on the lack of justification for a third computer center, especially when the requirements of the school library system are not substantially different from those of the public libraries or the State University. We recognize the fact that the Bureau of School Libraries is anxious to have a centralized processing system implemented

1. U.S. Elementary and Secondary Education Act of 1965.

as soon as possible, but we do not feel that the development of a separate system for schools could be implemented as early as the alternatives outlined below.

C. ALTERNATIVE METHODS OF IMPLEMENTATION

We recommend that instead of developing a third computer system, the school library system coordinate its efforts together with either the SUNY or ANYLTS system. In stressing these two plans, we do not intend to suggest that they are the only possibilities open to the schools. Various combinations of these plans are possible. We feel, however, that these two plans should be discussed as separate, distinct alternatives in order to present clearly the issues which must be considered by the school libraries. The two plans are outlined below and are discussed in greater detail in later sections of this report.

1. Plan 1: Coordination with SUNY

Under this plan the school library system would make use of the SUNY computer system. This system will satisfy the needs of the university libraries on a one-shift basis, and will thus be available to others during the second or third shift. If the schools entered into agreement with SUNY for the use of the system on the second shift, they would have at their disposal a highly sophisticated computer system, capable of processing 5 million volumes per year and of expanding to meet future demands.

The organization of a central processing system under Plan 1 is shown in Figure 1. The schools would set up six regional centers, one located adjacent to the central computer installation. Each regional center would be coupled to the central computer by telephone line and suitable terminal devices to allow the transmission of catalog card information, etc. The regional centers would operate during the normal first shift, as would the cataloging staff, and data transmission would take place during the second shift.

2. Plan 2: Coordination With ANYLTS

Under this plan the schools would coordinate with ANYLTS to establish a processing center and a number of regional centers to serve the requirements of both schools and public libraries. The system is shown diagrammatically in Figure 2. It would be administrated by an Executive Board with representatives from both SLOCAP and ANYLTS. Certain economies of scale would be realized through the use of common regional centers and delivery vehicles. However the total number of books which would require processing under this arrangement would be on the order of 8 million per year, and we do not believe that the present computer system being developed for ANYLTS could handle this amount of processing efficiently without major modifications.

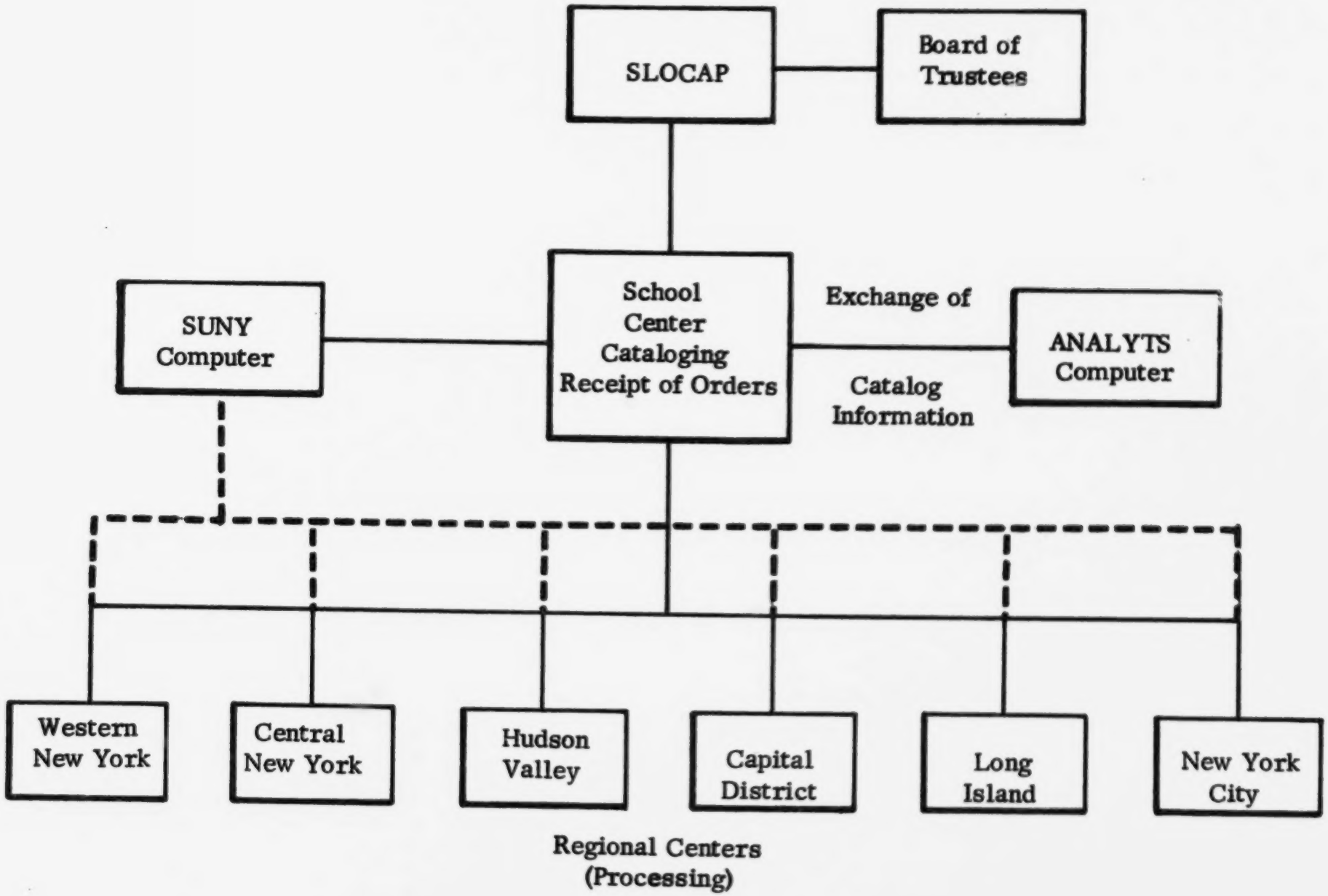

FIGURE 1 CENTRAL PROCESSING SYSTEM: PLAN 1

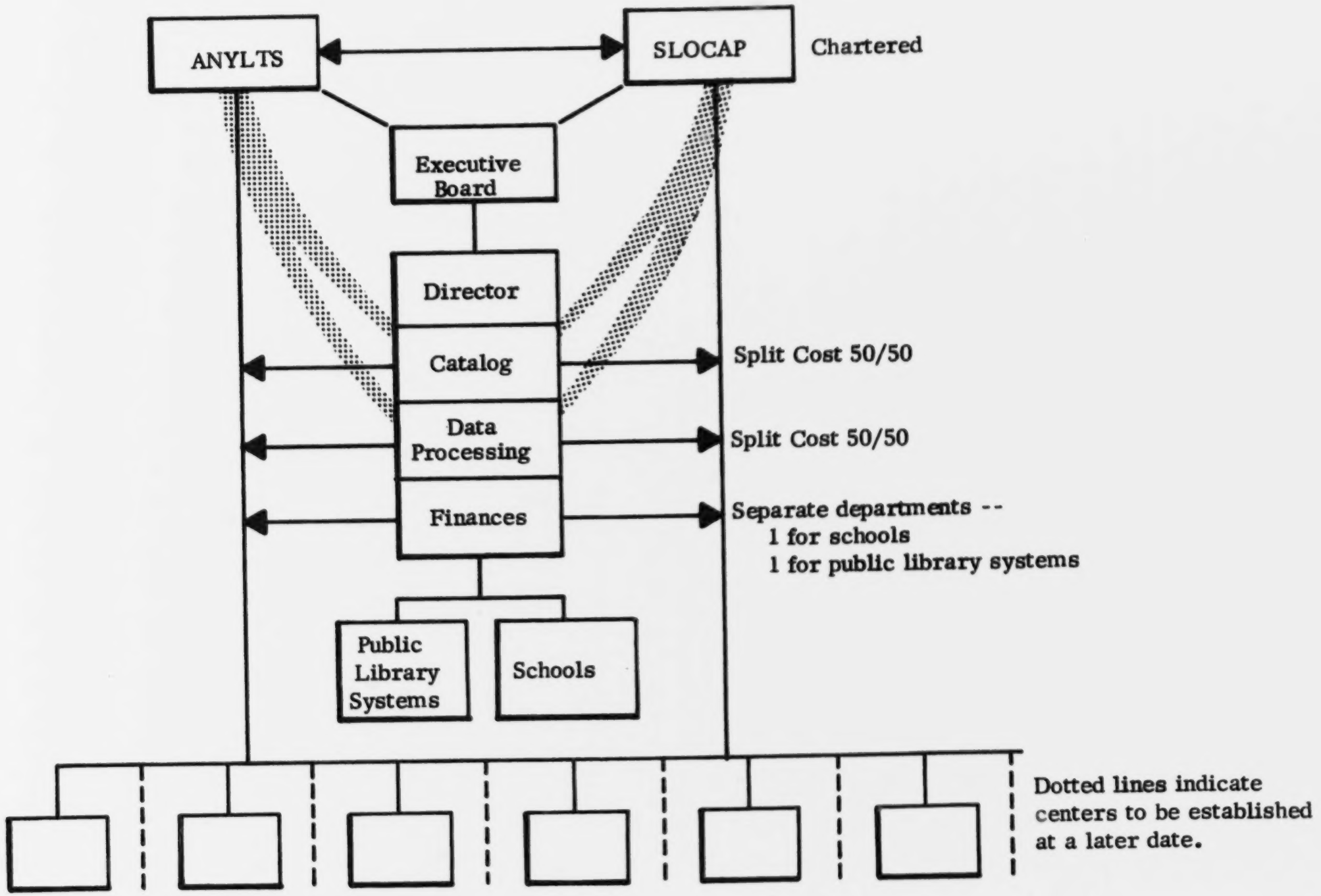

FIGURE 2 CENTRAL PROCESSING SYSTEM: PLAN 2

D. CATALOGING

It is anticipated that by June of 1968, the Library of Congress will offer to the public on tape an average of 2000 cataloged titles per week. Plans call for the inclusion of all American, English and German titles published annually to be included within the title catalog. In short, 100,000 titles per year will be available on tape from the Library of Congress. These tapes will be available from a service bureau at minimal cost, probably using disposable tape. It is anticipated that cataloged items on magnetic tape will be available well before publication date. This should provide a standard cataloging tool for current materials being provided to schools. We recommend that schools accept the cataloging as provided by the Library of Congress without change. It is interesting to note that juvenile titles will include annotations and subject headings.

School libraries, however, consistently order a considerable number of back titles which will not be covered by MARC tape at this time. We recommend that an effort be made to place at least 50,000 cataloged back titles of a pertinent nature on tape before the center becomes fully operational. We recommend that lists of key materials plus the holdings of several extensive school libraries be placed on tape in the following manner: catalog information will be assembled at a data collection and editing agency, probably located in New York City. This agency will edit the material, update it, and eventually present a file to the center including back titles arranged in the proper sequence. We estimate costs of between $30,000 and $40,000 for this operation. The University of Buffalo is conducting a somewhat similar operation in converting its own holdings into machine-readable form.

III. REGIONAL CENTERS

A. PLAN 1

It is recommended that an initial complement of six regional centers be established, one to service each of the following areas:

New York City
Long Island
Hudson Valley
Capital District including North Country
Central New York
Western New York.

Our selection of areas to be serviced by each center was based on a combination of standard geographical divisions, projected enrollment figures, and statistical forecasts of acquisitions by the school libraries through 1969-1970. The area breakdowns are shown in Figure 3. While for New York City we recommend beginning with only one center, we recognize that with the large volume of books that this center will potentially handle, it may be necessary to establish a second one within a few years, or alternatively expand the existing center by adding a second processing line.

We strongly recommend that the establishment of regional centers proceed without delay. Each center should be equipped to process about 800,000 volumes per year; this will require an estimated 12,000 square feet of floor space. Where existing centers wish to be named regional centers and can adapt to meet the demands of the greater processing load which will build up, they should receive primary consideration; we envision a program based on already existing regional centers, with further centers added as required. When existing centers are used they should be reimbursed for their participation, and they should comply with policies established for the SLOCAP system as a whole.

In the establishment of regional centers, many organizational problems will have to be clarified. A BOCES-operated center, for example, can service schools other than those belonging to the supporting BOCES group. We recommend that each center be supported by a local BOCES group and federal funds (Title III), if available, with an agreement to participate in the centralized processing center operated by SLOCAP.

It should be noted that one regional center should be located close to the central computer and cataloging facility. Books being cataloged for the first time will be routed to that center so that central cataloging staff will have access to them. In establishing regional centers, no substantial capital investment should be made in equipment that will become redundant when central processing facilities become available.

An alternative under Plan 1 would be to merge some or all of the processing centers so that they would be serving both public and school libraries. Since the recommended system design for SLOCAP makes provision for on-line terminals at each of the regional

FIGURE 3 AREAS SERVICED BY REGIONAL CENTERS

centers and provides for catalog cards to be printed in the same sequence that books are coming down the processing line, problems in a merger at this level can develop. It will be necessary to maintain two separate processing lines within each center, one for school books and the other for materials ordered for the public libraries. This is unwieldy but not an insuperable obstacle.

It is unfortunate that when the system concept was developed in New York State, it was conceived as a *public* library system and not a universal system serving both public and school facilities. There were various reasons why this happened, but none is pertinent to this report. What is important is the fact that schools have begun to set up regional systems of their own in which ordering, cataloging, and processing are being tied very closely to curriculum development activity. Enrichment centers established under various funding arrangements are attempting to offer a wide range of services of which ordering, cataloging, and processing constitute only a part. It is possible for processing activities to be conducted in a center for both public and school libraries, but the effect of withdrawing this service from the complex of services offered by a curriculum development or enrichment center should be studied and carefully evaluated. If there is merit in combining public and school library technical services, the time to effect cooperation is now, for the opportunity is almost past.

B. PLAN 2

If Plan 2 is adopted, then joint regional centers will be set up to handle both public and school library processing. We estimate that the number of regional centers will tend to grow from an initial six to as many as twelve. Only marginal economies of scale can be achieved by increasing the number of volumes processed above 800,000 per center per year, and thus the improved quality of service a center can provide by restricting its geographical coverage will tend to outweigh the marginal savings.

Under Plan 2, SLOCAP would be chartered and on the organizational chart (see Figure 2, page 8) placed at the same operating level as ANYLTS. An executive board consisting of two members of the ANYLTS Board and two members of the SLOCAP Board would be appointed to oversee the joint processing operation. We would recommend that there be one cataloging department and one computer department, but separate finance departments. The reason for the latter recommendation is that the problems of dealing with 4-5,000 schools which have different paying practices than do the several hundred public libraries, indicates that their financial records should be handled separately. As we see it, the charges for operating the central headquarters would tend to balance off or be relatively equal for public and school libraries. The major cost of the cataloging department would undoubtedly develop through service to public libraries, whereas, because of the larger volume of business with schools, it is likely that a larger share of the computer costs and finance department costs will be incurred by service to schools. It is particularly important for schools, whatever computer program is developed, to be able to order processed books from commercial vendors if they so desire. The availability of MARC tapes to commercial organizations will mean that a standard product, in some book categories at least, will be available through commercial firms. If the quality of the commercial product is acceptable and the price is right, the schools will undoubtedly wish to avail themselves of this opportunity. It seems unlikely, however, that commercial processing firms will be able to provide an unlimited range of titles at attractive prices.

If Plan 2 is adopted, we recommend that SLOCAP and ANYLTS remain separate entities for three years, at the end of which time sone consideration should be given to a possible merger of the two agencies. This will allow for possible changes to be made in the ANYLTS charter, but will not impede services offered by either group during the three-year period.

The recommended system design referred to earlier in the report under Plan 1 would operate in approximately the same fashion if utilized under Plan 2. The main difference, of course, would be that the computer center for the State University of New York would not be involved. In its place would be substituted the computer center for ANYLTS and SLOCAP.

IV. PLAN 1: COORDINATION WITH THE SUNY SYSTEM

The SUNY computer system consists of a medium-sized computer coupled to random-access disc memory units, and other input/output devices. The basic concept of the system is built around two disc files—the Authority File and the On-Order File. The Authority File contains cataloged information for each title that has been handled by the system. This file can be accessed by entering an author/title key; the catalog information is then displayed on a visual display unit. The average access time is about 5 seconds. Information from the On-Order File can be referenced in a similar way.

In this chapter we discuss the way in which schools would make use of the SUNY system and describe additions and changes which the system would require in order to meet the needs of the schools. A detailed implementation study of the SUNY system is now complete and will be available as a separate report. As will be seen later, use of the SUNY system by the schools would necessitate certain additions to the hardware configuration of the central computer. Also, space requirements at the main center would have to take into account the needs of the schools. Therefore, substantial cooperation between SUNY and SLOCAP is necessary in the early stages of implementation if the schools are to make efficient use of the final facilities.

A. OUTLINE OF THE PROPOSED SYSTEM

Before we discuss in detail the various operations involved, here are the salient points of the proposed system as it applies to school libraries.

- Each of the six or seven regional centers will be connected to the main center by means of a data link, with the exception of one center which is to be located close to the main center. The data link will allow two-way transmission of information between a magnetic tape unit at the regional center and the central computer.
- Suitable terminal equipment at the regional centers will provide the following facilities in conjunction with the magnetic tape unit:
  - —Card Reader
  - —Card Punch
  - —Line Printer(s).
- Schools will order books by mail through the main center, which will place the orders with vendors.
- Books will be delivered to the regional centers. Regional centers will physically process the books, using catalog cards and labels supplied as required by the main center over the data transmission system.
- Invoices will be sent by the vendors directly to the main center, which will handle all payments and school billing.

- All cataloging will be carried out at the main center. Books being cataloged for the first time will be ordered for delivery to the regional center attached to the main center, irrespective of the final destination of the book. This will allow access to the book for cataloging.

B. BOOK-ORDERING STATISTICS ASSUMED

For the purposes of determining book processing costs and weighing alternative modes of operation, the following statistics are assumed in this chapter.

Total volumes ordered per year	5,000,000
Number of working days	250
Average volumes ordered per working day	20,000
Number of ordering libraries	2,000
Average annual volume per ordering library	2,500
Average ordering frequency (times per year)	10
Average size of order (volumes)	250
Average number of orders per working day	80

The above figures are intended to express orders of magnitude only. The mode of operation and the processing costs on a per-volume basis would not be significantly affected by departures from these values. If, for example, the total number of volumes processed were to increase significantly, further hardware facilities would have to be added to the system but the per-volume cost would remain fairly constant. One fundamental design feature of the SUNY system is its ability to expand without destroying the basic concept, or mode of operation, of the system.

C. AUTHORITY FILE

Before discussing in detail the way in which orders are processed, it is necessary to describe the Authority File, which might be considered the heart of the processing system. The Authority File is a random-access disc file containing information about each title which has been cataloged. The cataloging may have been performed manually at the center or may be the result of stripping information from MARC tapes. (See Section II-D of this report for a discussion of cataloging.)

The key by which a particular title is referenced is a seven-letter code formed from the author and title of the book. It consists of the first three letters of the author's name, followed by the initial letters of the first four words of the title. If there are fewer than four words in the title, the remaining positions are filled from subsequent letters of the last title word. For example:

Gibbon, *The Decline and Fall*	= GIBTDAF
Jones, *Selected Poems*	= JONSPOE
Scott, *Ivanhoe*	= SCOIVAN

In tests carried out at Arthur D. Little, Inc., this method yielded unique codes for about 98% of a sample of 200,000 titles. In those cases where duplicate access keys are developed, a note in the first Authority File record can be used to reference the other records.

A typical Authority File record will contain the following information:

(1) Author/title key.
(2) Author(s).
(3) Title.
(4) Publisher.
(5) Date.
(6) Edition.
(7) Library of Congress classification number.
(8) Dewey classification number.
(9) Other cataloging data, including annotations and subject headings where appropriate.
(10) List of libraries holding this title, with the number of copies they have. (This will be limited as discussed later.)
(11) List of libraries with this title on order and the vendor/date number for each order.
(12) Whether the item has not been cataloged, i.e., if this is a temporary record.

Although the author/title key will be used to access the file, other data such as Library of Congress classification or publisher may be used to determine a match.

D. BOOK ORDERING

Books will be ordered by the school on a standard order form—one form per title ordered—which is mailed to the main center. The order form will contain places for the following information:

(1) Code number identifying region and ordering school.
(2) Author.
(3) Title.
(4) Publisher
(5) Year of publication.
(6) Edition.
(7) Number of copies.
(8) Library of Congress catalog card number.
(9) Binding and other special instructions.

The code number will consist of two parts: one identifies the regional center to which the book should be sent for processing, the other uniquely identifies the school. This number will be preprinted on the order forms distributed to each school.

The conversion of orders at the main center into machine-readable form is one operation that will differ substantially from the SUNY operation, in which orders are typed directly on consoles situated at each of the university libraries and enter the main computer directly from these consoles. We have examined the feasibility and economics of various methods of entering the school order, and we conclude that the most efficient operation can be obtained when direct on-line interaction with the Authority File is used.

Each order clerk will use a display unit equipped with a keyboard. At the beginning of a set of orders from a school, the unique school code will be entered via the keyboard. For each title requested, the seven-letter author/title code will then be entered. As each code is entered, the computer will match the author/title code with the Authority File. If a match is obtained, full author, title, publisher, etc., information will be displayed to allow the order clerk to verify visually that the correct volume has been found. The number of copies and any special instructions (represented by code letters) will then be entered, and the order process will be initiated. If a match is not found on the first attempt, the order slip will be passed to an order exception clerk.

The order exception clerk, also using a display unit, will check for any obvious errors in the order information and make further attempts to match the volume with a record on the Authority File. If the volume has not been previously cataloged, the book will be ordered for delivery to the regional center attached to the main center, and the order information will be transferred to a separate file, which will be later run against Library of Congress MARC tape titles not transferred to the Authority File. If no match is found during this operation, which will be done once per day, a temporary record will be established on the Authority File.

The above method of processing orders will involve the minimum of information to be entered by the order clerk. The school code number will be entered only once for each order from a school, and any title which has been previously cataloged will require only a seven-letter code entry, plus number of copies, and in some cases a key letter representing special instructions. It is estimated that the processing of 20,000 volumes per day will require about 20 display units and 20 clerks. The ratio of exception clerks to order clerks will vary over time as the percentage of previously cataloged titles increases, but we estimate that an initial ratio of 1:4 will be required.

After the orders have been entered, they will be processed as in the SUNY system, except that separate orders will be produced for delivery by vendors to each of the regional centers. For each order placed with a vendor, information will be transmitted to the regional center to which the order is to be sent. This information will produce at the regional center:

- A punched card containing the order number.
- Two identical punched cards for each volume ordered under that order number, containing order serial number, author, and title.

These punched cards, which will be interpreted through the use of a printing card punch, will be stored at the regional center for subsequent matching against the volumes when they arrive from the vendors.

It is recommended that a separate ordering room be established at the main center to house the ordering staff and associated display units, as this facility will not be used by the SUNY operation.

E. REGIONAL PROCESSING

On receipt of books at one of the regional centers, the following operations will be performed:

(1) From the shipping note accompanying the books, the punched cards pertaining to that order will be found. In the event that a vendor does not quote the original order number, there will be two ways of matching the books received to an order. A unique number for each vendor will form part of each order number. The date of the order will also be included as part of the order number. Using these two keys, it should be possible to locate the order.

(2) Each volume will be matched with a pair of punched cards under the appropriate order number. One of the cards will be placed inside the book. The second will be placed in one of three stacks, for later transmission to the main center. The three stacks will represent the following conditions:

  (a) Book received in good condition. Catalog cards and labels requested.

  (b) Book received in good condition and preprocessed. No catalog cards or labels required.

  (c) Book received in poor condition, or wrong book. Book returned.

(3) The volumes to be processed will pass down the production line in the order in which the cards have been placed in the stacks. This will later allow the main center to send catalog and label information over the data transmission link to produce hard copy at the regional center in the order in which the books lie on the production line.

(4) When the books have been processed, they will be stacked in bins corresponding to the schools to which they are to be delivered. When books are packed for delivery, the remaining punched card will be removed from each book and used as follows:

  (a) To produce shipping notes as required at the regional center.

  (b) For transmission over the data link to the main center to record that the book has been delivered.

(5) At the regional center attached to the main center, books requiring cataloging will be routed to the cataloging staff prior to physical processing. The catalog information will be entered onto the Authority File using a display console, the temporary record on the file will be changed to permanent, and the book will be returned to the production line for normal processing.

F. DATA TRANSMISSION

Data transmission between regional centers and the main center will take place once a day. Information to be transmitted from the regional center will be assembled onto magnetic tape during the day and transmitted during the second shift, when the school libraries have the use of the main center. When the transmission is complete, the main center will send to the regional center, direct to tape, the information required for the next day's processing. It is estimated that an average of three or four hours transmission will be required each day between each regional center and the main computer when centers are operating at full capacity. This can be comfortably achieved during one shift using the multiplex facilities of the central computer.

Apart from data transmissions outlined in earlier sections, several minor flows of information can take place over the data link. These include:

- Lists of orders for which cancellation notices have been sent to the vendors. This allows remaining punched cards under these order numbers to be discarded at the regional centers.
- Messages in free format in case of special instruction or queries.

G. INVOICING: THE ON-ORDER FILE

From the above, it can be seen that at each stage in the book processing procedure, information will be available at the main computer indicating the status of each volume ordered. This information will be recorded on the On-Order File, which is the second main file of the system, also contained on disc.

When the main center receives invoices from vendors, these will be processed by an invoice clerk, again using a display unit and keyboard. The clerk will enter the order number and display the information contained in the On-Order File, entering price and discount information against each item. The invoices will be proved by comparing the total automatically calculated by the computer with that shown on the invoice. For example:

	List	Disc.	Net
Gibbon, *The Decline and Fall*	$10.00	30%	$ 7.00
Jones, *Selected Poems*	5.00	20%	4.00
Total			$11.00

The clerk would first enter $7.00 against the appropriate record, then the discount of 30%. The computer would display the calculated list price, which the clerk would check visually against the invoice. The same procedure would be carried out for the second volume, after which the clerk would call for the total, which would then be checked against the invoice total.

After the price information has been entered on the On-Order File, it will be used to pay the vendors and bill the schools. The exact accounting procedure adopted will be decided by the business office, which will have to establish business practices as early as possible to allow the necessary accounting programs to be written.

V. PLAN 2: SLOCAP/ANYLTS

The present computer system design for public library book processing is based, if our understanding is correct, on the production of a printed union catalog. It involves a medium-size computer, operating in batch mode, and at present provides no communication link or remote printing facilities at the regional centers. All transactions between regional centers and the main center take place by mail. We have studied the system carefully, and we are not satisfied that significant delays will not occur in the processing stream, or that there is sufficient control facility for the overall operation at the main center.

We are not recommending the creation of a book catalog for school libraries. If a system design similar to that being prepared for SUNY is adopted, the Authority File will contain all the information necessary for a union catalog, both on a state basis and on a regional basis. At a later stage of development of the system, this file could be interrogated directly from the regional centers.

At first glance, Plan 2 would seem to be straight-forward, and in fact preferable to Plan 1. On the surface, school libraries would seem to be more closely related to public libraries than to the institutions making up SUNY. The operation of dual-purpose processing centers makes sense as well. Indeed, if schools and public libraries were just now beginning to consider the establishment of processing centers either jointly or individually, a joint operation would be the obvious answer. Because of the following factors, a joint operation is no longer the obvious answer:

- Public library systems (in ANYLTS) have for some years been developing a program suited to their needs, and a system design has been prepared again suited to their specific needs.
- The ANYLTS system design is oriented to the development and maintenance of a book catalog.
- The school program would have to be considered on equal terms with the public library program and a restructuring of lines of authority would therefore be necessary.
- Regional centers, two in number with a third on the way, are developing service patterns for school libraries. Within the complex of service offered is centralized processing, which is very closely tied to the whole program of curriculum development.

In most processing centers, one finds the feeling that processing costs for school libraries tend to be lower than those for public libraries. Reasons given for this are varied, but the main theme seems to be that school libraries tend to order a higher ratio of volumes to titles than do public libraries. In conventional processing centers, the high cost of cataloging and searching, and the greater number of titles ordered for public libraries would tend to substantiate the claim that processing costs for public libraries are higher. We feel that, with the coming of MARC tapes and the utilization of sophisticated computer system designs,

this differential should tend to flatten out. Since original cataloging will be held to a minimum, it will not really be much of a cost factor. If there is a differential in favor of schools, it will be balanced off by the additional cost for maintaining business relationships with many more school libraries than public libraries, and by the fact that school libraries tend to require more paper work per business transaction than do public libraries.

If, however, a less sophisticated system is used which does not permit random access, the difficulty of obtaining access to the holdings of the files would, we feel, tend to inflate the cost of public library processing rather than that of processing for schools. In the type of system design we have recommended, no appreciable differential should exist. If a joint venture with ANYLTS were to develop and a system design somewhat similar to the one we have recommended were utilized, we see no reason for a differential in the cost of processing for school and public libraries.

There are some other factors which must be considered here. One of the attractive features of an ordering, cataloging, and processing service is that it provides the opportunity for developing an information retrieval tool at relatively low cost. Information concerning which library has ordered a particular book can be moved from the books-processed file to a union catalog with a minimum amount of effort and expense. This is true regardless of whether the union catalog is developed as a book catalog or as information stored on disc. It is absolutely essential that the majority of public and school libraries participate in the program, either jointly or independently, if these catalogs are to be truly useful tools. In the area of processing for schools, there are competitive influences in the market which will tend to restrict costs which can be charged to the individual library. If a unit cost is charged to libraries, it might well be that the charge might be palatable to public libraries but not to schools. The danger exists that if a charge of $1.25 or more per volume were passed on to libraries, the commercial processing houses would tend to syphon off a substantial portion of the processing load. If that is the case, then schools will turn elsewhere, and it will be more and more difficult to maintain an effective union catalog. It will be necessary to have regional centers operating on a high-volume basis in order to reduce the unit cost, and in general to conduct a businesslike operation. Otherwise, an operation of this sort, whether it be jointly entered into or conducted individually, will not be successful.

VI. COSTS

Tables 1-4 show our cost estimates for central processing as outlined in this report. These costs were arrived at assuming Plan 1. It will make little difference, as far as cost is concerned, which alternative under Plan 1 is used.

TABLE 1

COST OF SALARIES PER REGIONAL CENTER
(Processing Center Handling 800,000 Volumes)

Administration	
1 Business Manager	$13,000
1 Senior Administrative Assistant	10,500
1 Secretary	5,000
1 Clerk-Typist (personnel)	4,000
1 Switchboard Operator	4,000
	36,500
EDP	
1 Senior Tab Operator	8,500
1 Tab Operator	7,000
	15,500
Business	
1 Administrative Assistant	9,000
1 Financial Clerk	5,000
1 Senior Clerk (supply inventory and order file)	5,000
1 Secretary	5,000
	24,000
Processing	
1 Administrative Assistant	9,000
2 Senior Clerks (processing line)	10,000
4 Receiving Clerks	16,000
15 Full-time Equivalents for Processing Line	45,000
	80,000
Miscellaneous	
1 Senior Driver	6,500
1 Driver	5,000
1 Senior Maintenance Man	7,500
1 Maintenance Man	5,000
1 Senior Shipping Clerk	6,500
2 Assistant Shipping Clerks	10,000
Additional Help; Vacations	20,000
	60,500
Plus 1/2 Library Consultant (2 centers share salary cost)	6.000
Total	$222,500

TABLE 2

BUDGET PER REGIONAL CENTER

Salaries	$222,500
Fringe Benefits	40,000
Rent @ $2/ sq ft (12,000 sq ft)	24,000
Supplies (processing—18 cents/volume)	125,000
Supplies (office)	7,000
Utilities	12,500
Service Contracts	10,000
Maintenance for Vehicles and Building	6,000
Operating Costs—Vehicles	4,000
Insurance	5,000
Travel	3,000
Miscellaneous	5,000
Capital Equipment	6,000
Postage	12,000
Total	$482,000

(approximately 60 cents/processed book in each center)

TABLE 3

BUDGET FOR SLOCAP HEADQUARTERS

Director–Librarian	$17,000
Assistant Director–Business Manager	14,000
Assistant Director–Librarian/Consultant	14,000
Secretary	5,000
Secretary	5,000
Switchboard Operator	4,000
	59,000
Cataloging Department	
1 Senior Cataloger	14,000
2 Catalogers	20,000
4 Senior Library Clerks	20,000
2 Console Opeators	8,000
	62,000
Business Office	
1 Business Manager	12,000
2 Administrative Assistant	9,000
2 Secretaries	10,000
3 Senior Clerks	15,000
3 Clerk-Typists	12,000
	58,000
Order Department	
1 Administrative Assistant	9,000
2 Senior Library Clerks	10,000
1 Secretary	5,000
	24,000
Miscellaneous (including truck drivers, maintenance men, laborers, and part-time help)	50,000
EDP Staff	
Main Center Staff	84,000
20 Order Clerks	144,000
	228,000
Total Personnel Costs	481,000
Headquarters Operating Costs (other than those relating to computer and communication operation	225,000
Total Cost for Headquarters (rounded)	$700,000

TABLE 4

TOTAL ANNUAL COSTS OF THE PROJECT: 5 MILLION VOLUMES

6 Centers–Operating Costs	2,892,000
Computer Costs (1)	200,000
Terminal Equipment	120,000
Headquarters	700,000
Other Costs	75,000
Total Annual Costs (rounded)	4,000,000

(1) Assuming no educational discount, and a rental of 50% of the prime SUNY rental.

We projected costs outlined on the basis of separate centers for schools and public libraries. Necessarily, costs must be estimated. For example, rent for regional centers was estimated at $2 per square foot it may be more or it may be less); we figure it to be close, except, of course, in New York City. The possibility also exists that rent would be free. Several other categories vary similarly. On the basis of these costs, it would appear possible to completely process a book for schools for less than $1; in fact, the costing process would seem to indicate a charge of approximately 85 cents per volume.

We found it interesting to note that equipment would constitute a relatively minor part of the total cost of the program. The cost of the computer with software and peripheral equipment comes to about 4 cents per volume (with a load of 5 million volumes). In addition, the cost of leasing the on-line terminals and telephone lines at five of the six centers would be approximately 3 cents per volume. The cost of staff to operate the computer equipment at the center and in the six regional outlets, including the cost of fringe benefits, would be approximately 8 cents per volume. Use of on-line equipment in the field would seem easily justified at only a few cents per volume.

Each of the regional outlets would be managed by a business manager and would have one half the time of a library consultant available to cope with customer relations in the field. Thus, two centers could share a library consultant.

The headquarters, including the EDP equipment costs, will cost the total SLOCAP operation approximately 18 cents per volume. We feel that the headquarters will eventually provide the channel for information retrieval and that the work undertaken there in the course of ordering, cataloging, and processing books can be used to provide input for the union catalog. We feel that at least half the cost of the headquarters should be charged off to the development of an information retrieval system. This, of course, would further reduce costs.

VII. IMPLEMENTATION SCHEDULE

At the present time, not only is there a very real need for the establishment of a centralized processing system for school libraries in the State of New York, but there is substantial pressure on the Bureau of School Libraries to bring this about. If the Bureau of School Libraries were to begin planning its own computer system design later in 1967, and offer no form of centralized processing to schools until the headquarters and the computer effort were operational, three years would undoubtedly elapse before any book processing were done at all. If additional regional centers, such as have been established under BOCES, Title III, and/or local funds, are made operational prior to the establishment of the headquarters, some processing of books for schools could take place well within that time span. The problem, of course, is that of building a regional operation first and then tying it in with the headquarters which will come later on. The additional danger exists that if these regional centers are established now and ANYLTS regional centers are also established, there may be serious overlapping.

A. SCHEDULES UNDER PLAN 1 AND PLAN 2

Under Plan 1, we recommend the following:

- Additional regional centers should be established as soon as possible to reach the full complement of six centers.
- Each center so established should receive an initial grant of $150,000.
- If the money is made available in 1968, the regional centers should be operational in 1969.
- A skeleton staff for the headquarters should be hired to prepare for the full operation of the system in late 1969.
- The processing headquarters should be located near the centralized processing office for SUNY.
- An allocation of $50,000 to build a back file of titles should be made so that, when the system becomes fully operational, the combination of these back titles and the MARC tapes will provide a reservoir of cataloged titles. This should be done in the latter half of 1968 and the first half of 1969.

We assume that no developmental costs will be incurred for system design or programming, except that it would be necessary to add to the system design the ability to: (a) develop an information retrieval effort, if this is desired at this time, and (b) add business functions, such as preparation of checks and statements, an area not presently covered under the SUNY system design.

It is anticipated that the SUNY system will become sufficiently operational by late 1969 so that the computer will be available to the schools at that time. Since the only relationship with SUNY involves the use of the computer, it will make little difference to the schools how slowly or quickly SUNY becomes fully operational.

If Plan 2 is undertaken, we recommend the following:

- The SLOCAP system should be established and any legal matters arranged, including the chartering of the organization. This should be done during 1968.
- An allocation of $50,000 should be made to build up catalog files, as indicated under Plan 1.
- A skeleton staff at the SLOCAP headquarters should be established.
- A joint funding agreement with ANYLTS should be worked out to cover the establishment of additional processing centers, which will be jointly administered. This should probably take place in 1969 and become operational in 1970.

It appears that there would be no developmental costs for system design and programming, since this has already been undertaken by the Division of Library Development. A possible exception would be the cost of altering the design and providing the programming to establish a union catalog. It seems unlikely to us that a book catalog for the holdings of public libraries and schools will be a viable instrument in the long run. If the school files are to be interrogated, as we have indicated under Plan 1, additional system design will have to be paid for. It will be important to locate SLOCAP either adjacent to ANYLTS, if not actually in the same office.

There is always a third alternative of accepting the ANYLTS plan as it now stands and the system design as it has been developed. This is better than attempting to establish a completely separate and new network, but in our opinion, it is much less desirable than either Plan 1 or Plan 2.

B. CONCLUSION

It is of little importance which system design is utilized as long as it has the capacity to do the job. It is also of little importance which agency—e.g., SUNY or a combination of ANYLTS and SLOCAP–is administratively responsible for the computer center. The important thing is that computer time is available, and that unit costs can be reduced by sharing the time on the computer. The establishment of union files can be accomplished through cooperation and communication networks if there is sufficient interest. If there is not sufficient interest, then both plans will fail anyway. We feel that Plan 1 is preferable to Plan 2, that Plan 2, because of a maze of minor problems, will be extremely difficult to implement, but that either program could do the job.